

IN THE CLAIMS

Claims 1-28 (canceled).

29. (currently amended) Artificial urinary diversion apparatus extending in a longitudinal direction comprising a first portion having a plurality of first cross-sectional areas perpendicular to said longitudinal direction including at least one largest first cross-sectional area and a first outer surface, a second portion having a plurality of second cross-sectional areas perpendicular to said longitudinal direction including at least one largest second cross-sectional area and a second outer surface, and a third portion having a plurality of third cross-sectional areas perpendicular to said longitudinal direction including at least one largest third cross-sectional area and a third outer surface, said second portion being disposed between said first portion and said third portion, said first portion including at least one outlet, said third portion including at least one inlet, said at least one largest second cross-sectional area being smaller than said at least one largest third cross-sectional area, a sphincter mechanism for opening and closing said outlet, and control means for controlling said sphincter mechanism enclosed entirely within said artificial urinary diversion apparatus defined by said first, second and third outer surfaces, said first, second and third outer surfaces comprising a first outline of said apparatus having a shape in a plane parallel to said longitudinal direction corresponding to the 6th polynomial function

$$F(x) = A + a_1x + a_2x^2 + a_3x^3 + a_4x^4 + a_5x^5 + a_6x^6$$

wherein A is greater than 0 and less than 2, a_1 is greater than 0 and less than 8, a_2 is less than 0 and greater than -2, a_3 is greater than 0 and less than 1, a_4 is less than 0 and greater than -0.1, a_5 is greater than 0 and less than 0.003, and a_6 is

~~greater than 0.00001 and less than 0 and x is greater than 0 and less than 22.~~

Claims 30-67 (canceled).

68. (currently amended) The artificial urinary diversion apparatus of claim 67-29 wherein said first, second and third portions are integrally formed.

69. (previously presented) The artificial urinary diversion apparatus of claim 29 wherein said at least one largest first cross-sectional area is larger than said at least one largest second cross-sectional area.

70. (previously presented) The artificial diversion apparatus of claim 29 including a pump enclosed entirely within said artificial urinary diversion apparatus.

71. (previously presented) The artificial urinary diversion apparatus of claim 29 wherein each of said first, second and third areas comprises a modular unit having said first, second and third outer surfaces adapted to provide a continuous outer surface for said apparatus.

72. (previously presented) The artificial urinary diversion apparatus of claim 29 including fluid guide means for guiding a fluid directly from said third area to said first area through said second area.

73. (previously presented) The artificial urinary diversion apparatus of claim 29 including a pump.

74. (previously presented) The artificial urinary diversion apparatus of claim 73 wherein said pump is disposed in said third area.

75. (previously presented) The artificial urinary diversion apparatus of claim 74 wherein said pump comprises a telescopic pump.

76. (previously presented) The artificial urinary diversion apparatus of claim 74 wherein said pump comprises a lever pump.

77. (previously presented) The artificial urinary diversion apparatus of claim 76 wherein said lever pump is contained within two of said first, second and third areas.

78. (previously presented) The artificial urinary diversion apparatus of claim 74 wherein said pump comprises a screw pump.

79. (previously presented) The artificial urinary diversion apparatus of claim 78 wherein said screw pump is located within said first area.

80. (previously presented) The artificial urinary diversion apparatus of claim 79 wherein said screw pump comprises a plurality of screws, including at least one screw which is capable of being moved laterally.

81. (previously presented) The artificial urinary diversion apparatus of claim 29 wherein said sphincter mechanism is disposed in said first area.

82. (previously presented) The artificial urinary diversion apparatus of claim 29 including a sensor for sensing the filling level of said apparatus.

83. (previously presented) The artificial urinary diversion apparatus of claim 82 including alarm means for providing an alarm based on said filling level sensed by said sensor.

84. (previously presented) The artificial urinary diversion apparatus of claim 83 wherein said alarm means comprises a sound or seismic alarm signal.

85. (previously presented) The artificial urinary diversion apparatus of claim 82 wherein said sensor is controlled by the nerves responsible for the control of a normal bladder.

86. (previously presented) The artificial urinary diversion apparatus of claim 29 including a power supply.

87. (previously presented) The artificial urinary diversion apparatus of claim 86 wherein said power supply includes an external recharge device and an internal recharge responsive device cooperating with said external recharge device.

88. (previously presented) The artificial urinary diversion apparatus of claim 87 wherein said internal recharge responsive device cooperates inductively with said external recharge device.

89. (previously presented) The artificial urinary diversion apparatus of claim 86 wherein said power supply comprises primary battery means.

90. (previously presented) The artificial urinary diversion apparatus of claim 89 wherein said primary battery means is integrated into said apparatus.

91. (previously presented) The artificial urinary diversion apparatus of claim 29 including expulsion means for expelling liquid from said apparatus.

92. (previously presented) The artificial urinary diversion apparatus of claim 29 wherein said third area comprises a plurality of said third areas.

93. (previously presented) The artificial urinary diversion apparatus of claim 92 wherein said plurality of third areas are movably disposed with respect to each other.

94. (previously presented) The artificial urinary diversion apparatus of claim 29 wherein said third area includes a pair of said inlets.

95. (previously presented) The artificial urinary diversion apparatus of claim 29 including at least one anti-reflux valve.

96. (previously presented) The artificial urinary diversion apparatus of claim 95 including a plurality of said anti-reflux valves.

97. (previously presented) The artificial urinary diversion apparatus of claim 95 wherein said anti-reflux valve is contained within said third area.

98. (previously presented) The artificial urinary diversion apparatus of claim 29 including a fixing element for fixing said apparatus in a human body.

99. (previously presented) The artificial urinary diversion apparatus of claim 98 including connection means for connecting said fixing element to said apparatus.

100. (previously presented) The artificial urinary diversion apparatus of claim 99 wherein said connection means comprises a dovetail joint.

101. (previously presented) The artificial urinary diversion apparatus of claim 99 wherein said connection means comprises guide rail means for movably locking said fixing element at a predetermined location with respect to said apparatus.

102. (previously presented) The artificial urinary diversion apparatus of claim 101 wherein said guide rail means is integrated into said third area.

103. (previously presented) The artificial urinary diversion apparatus of claim 98 wherein said fixing element includes an expandable member for altering the shape of said fixing element.

104. (previously presented) The artificial urinary diversion apparatus of claim 103 wherein said expandable member is entirely included within said fixing member.

105. (previously presented) The artificial urinary diversion apparatus of claim 103 wherein said fixing element comprises a biocompatible elastic material.

106. (previously presented) The artificial urinary diversion apparatus of claim 105 wherein said biocompatible elastic material comprises silicone.